

### **AMENDMENTS TO THE CLAIMS**

**Claim 1 (Original)** An artificial cardiac pump comprising a housing, an impeller pivotally supported with respect to an axial body fixed in said housing and a driving mechanism for rotating said impeller, wherein blood is taken in from the front side of said impeller and force-fed to the rear side of said impeller along an axial direction by rotating said impeller by said driving mechanism;

said axial body connected and sandwiched between a front side fixed body and a rear side fixed body, wherein said front side fixed body is fixed at a straightening board protruded from an inner wall of said housing at a front side with respect to said impeller and said rear side fixed body is fixed at a board-shaped diffuser protruded from said inner wall of said housing at a rear side with respect to said impeller;

said impeller comprising an inner peripheral surface confronting with an outer peripheral surface of said axial body with a micro gap, a sleeve of which the both end surfaces confronting with a rear end surface of said front side fixed body and a front end surface of said rear side fixed body with a micro gap, respectively and impeller wing-components protruded from an outer peripheral surface of said sleeve;

said artificial cardiac pump characterized in that said driving mechanism comprises polar anisotropic permanent magnets installed in said sleeve and rotary magnetic flux generator installed in said housing and surrounding with a peripheral portion of said impeller.

**Claim 2 (Original)** An artificial cardiac pump as claimed in claim 1, characterized in that trust hydrodynamic generation grooves for supporting thrust load applied to said impeller are provided at said rear end surface of said front side fixed body and said front end surface of said rear side fixed body which is confronting with each end surface of said sleeve, respectively.

**Claim 3 (Currently Amended)** An artificial cardiac pump as claimed in claim 1 ~~one of claims 1 and 2~~, characterized in that a ring-shaped magnetic body for confronting with an end surface of said sleeve is installed in said rear side fixed body.

**Claim 4 (Currently Amended)** An artificial cardiac pump as claimed in claim 1 ~~one of claims 1 through 3~~, characterized in that a first magnet for confronting with said rear end surface of said rear side fixed body is installed in said sleeve;

a second magnet for confronting with said front end surface of said sleeve is installed in said front side fixed body; wherein said first magnet and the second magnet are installed so as to confront with the same polar of said first and second magnets and repulsion force is produced between said first magnet and said second magnet.

**Claim 5 (Original)** An artificial cardiac pump as claimed in claim 4, characterized in that said magnet is a permanent magnet.

**Claim 6 (Currently Amended)** An artificial cardiac pump as claimed in claim 4 ~~one of claims 4 and 5~~, characterized in that said magnet is a ring-shape and arranged coaxially with a rotational axis of said impeller.

**Claim 7 (New)** An artificial cardiac pump as claimed in claim 2, characterized in that a ring-shaped magnetic body for confronting with an end surface of said sleeve is installed in said rear side fixed body.

**Claim 8 (New)** An artificial cardiac pump as claimed in claim 2, characterized in that a first magnet for confronting with said rear end surface of said rear side fixed body is installed in said sleeve;

a second magnet for confronting with said front end surface of said sleeve is installed in said front side fixed body; wherein said first magnet and the second magnet are installed so as to confront with the same polar of said first and second magnets and repulsion force is produced between said first magnet and said second magnet.

**Claim 9 (New)** An artificial cardiac pump as claimed in claim 3, characterized in that a first magnet for confronting with said rear end surface of said rear side fixed body is installed in said sleeve;

a second magnet for confronting with said front end surface of said sleeve is installed in said front side fixed body; wherein said first magnet and the second magnet are installed so as to confront with the same polar of said first and second magnets and repulsion force is produced between said first magnet and said second magnet.

**Claim 10 (New)** An artificial cardiac pump as claimed in claim 7, characterized in that a first magnet for confronting with said rear end surface of said rear side fixed body is installed in said sleeve;

a second magnet for confronting with said front end surface of said sleeve is installed in said front side fixed body; wherein said first magnet and the second magnet are installed so as to confront with the same polar of said first and second magnets and repulsion force is produced between said first magnet and said second magnet.

**Claim 11 (New)** An artificial cardiac pump as claimed in claim 8, characterized in that said magnet is a permanent magnet.

**Claim 12 (New)** An artificial cardiac pump as claimed in claim 9, characterized in that said magnet is a permanent magnet.

**Claim 13 (New)** An artificial cardiac pump as claimed in claim 10, characterized in that said magnet is a permanent magnet.

**Claim 14 (New)** An artificial cardiac pump as claimed in claim 8, characterized in that said magnet is a ring-shape and arranged coaxially with a rotational axis of said impeller.

**Claim 15 (New)**      An artificial cardiac pump as claimed in claim 9, characterized in that said magnet is a ring-shape and arranged coaxially with a rotational axis of said impeller.

**Claim 16 (New)**      An artificial cardiac pump as claimed in claim 10, characterized in that said magnet is a ring-shape and arranged coaxially with a rotational axis of said impeller.

**Claim 17 (New)**      An artificial cardiac pump as claimed in claim 11, characterized in that said magnet is a ring-shape and arranged coaxially with a rotational axis of said impeller.

**Claim 18 (New)**      An artificial cardiac pump as claimed in claim 12, characterized in that said magnet is a ring-shape and arranged coaxially with a rotational axis of said impeller.

**Claim 19 (New)**      An artificial cardiac pump as claimed in claim 13, characterized in that said magnet is a ring-shape and arranged coaxially with a rotational axis of said impeller.